



Schunk Products for Wind Turbines



Schunk Kohlenstofftechnik GmbH
Schunk Bahn- und Industrietechnik GmbH



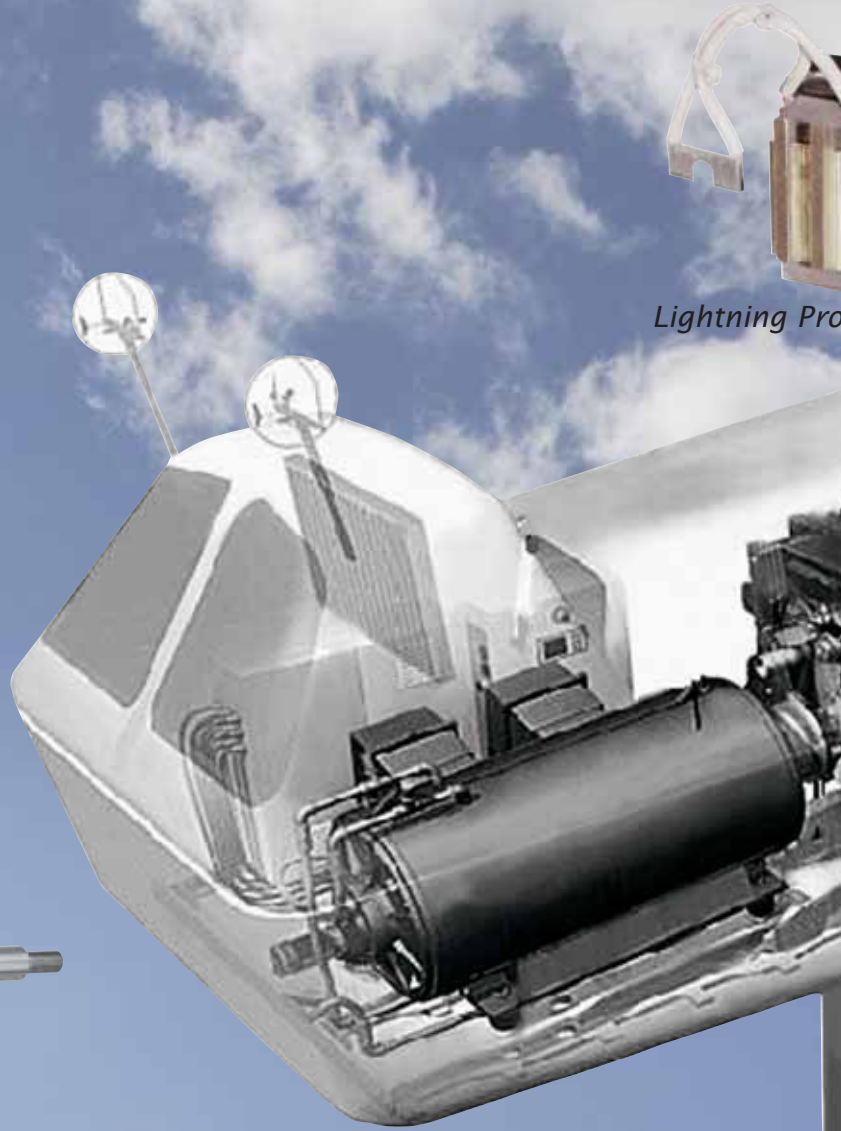
Schunk Products for Wind Turbines

Schunk manufactures for Wind Turbines

- Carbon Brushes
- Brush Holders
- Brush Rockers
- Slip Rings
- Lightning Protection Systems
- Shaft Grounding Units (also for Synchronous Generators)
- Flexible Current Connectors



Slip Ring Unit

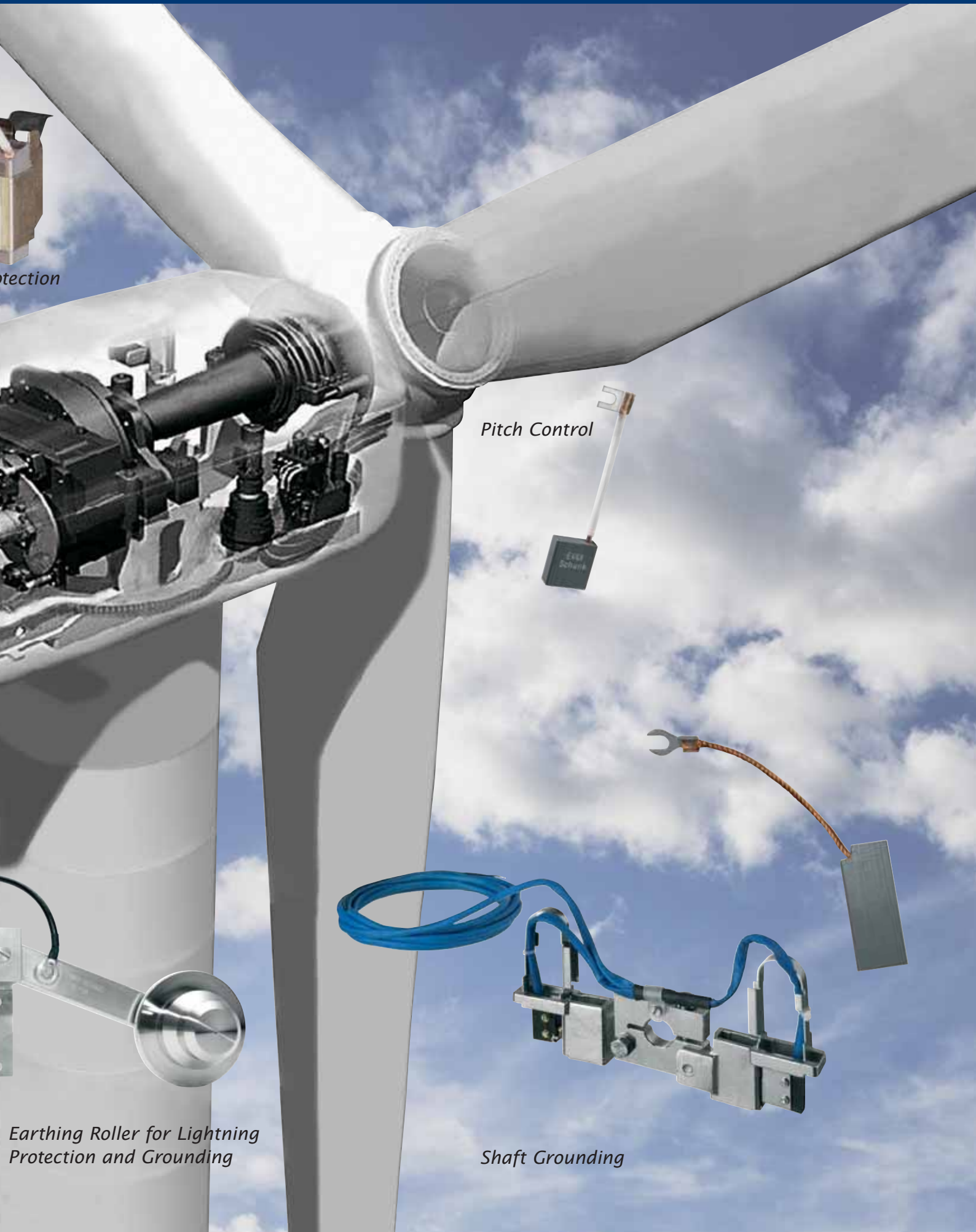


Lightning Protection



Brush Holder

Carbon Brush



Lightning Protection

Pitch Control

Earthing Roller for Lightning Protection and Grounding

Shaft Grounding

Overview of our Product Range



Brush Rockers
in customized design for generators



Special Brush Rockers
for 3.4 MW generators with radial blowers



Slip Rings
up to 1,500 A and more than 3,000 rpm overspeed



Power Brushes



Grounding Brushes



Lightning Protection Brushes



Grade Recommendations – Wind Power

Wind generators

Grade	Metal content %	Optimal permanent current density		Max. permanent speed*		Remarks
		A/in ²	A/cm ²	ft/s	m/s	
C72	28	92	14	131	40	For low electrical loads
A41X	37	118	18	131	40	For low humidity
A24X	40	118	18	131	40	Standard grade, ring saving
C80	53	131	20	115	35	Suitable for brass, bronze and steel rings
C80X	53	131	20	115	35	Improved wear resistance
S13	60	144	22	115	35	Lowest electrical losses
K14Z3	63	144	22	115	35	Low electrical losses
E43	-	65	10	164	50	For carbon/carbon units

* On helically grooved rings only

Shaft grounding

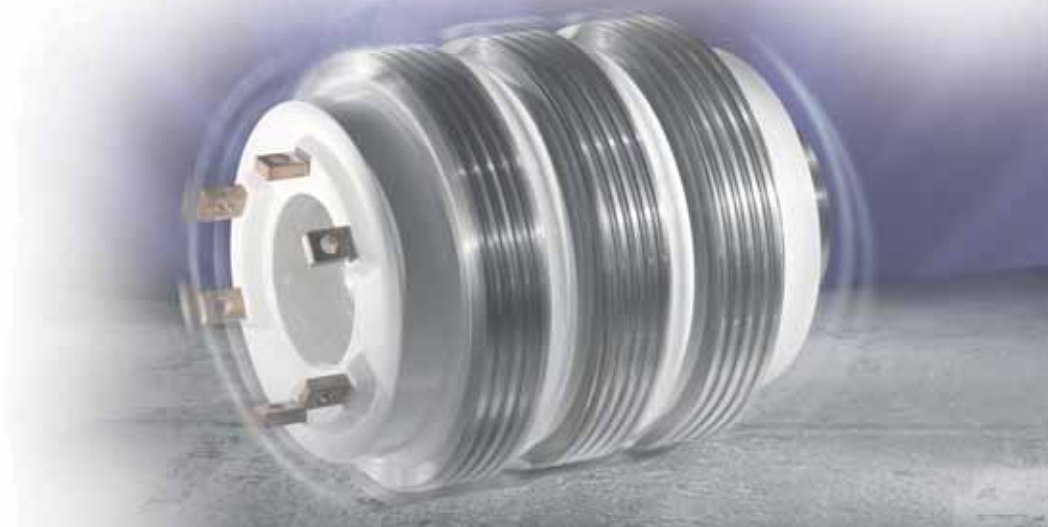
Grade	Metal content %	Optimal permanent current density		Max. permanent speed		Remarks
		A/in ²	A/cm ²	ft/s	m/s	
A24X	40	-	-	131	40	Standard for 4 th ring (steel)
S13/F19	60/-	-	-	115	35	Sandwich design, standard combination
B24	90	-	-	115	35	Excellent film control
C40Z3	75	-	-	115	35	Excellent film control

Lightning protection – our designs are approved up to 150 kA (with special spark gap up to 200 kA)

Grade	Metal content %	Optimal permanent current density		Max. permanent speed		Remarks
		A/in ²	A/cm ²	ft/s	m/s	
A20	50	-	-	-	-	Standard grade
K14Z3	63	-	-	-	-	Standard grade
C40Z3	75	-	-	-	-	For polluted ambience
E43	-	-	-	-	-	For offshore application

Pitch control

Grade	Metal content %	Optimal permanent current density		Max. permanent speed		Remarks
		A/in ²	A/cm ²	ft/s	m/s	
E46X	-	78	12	164	50	Standard grade
E105	-	78	12	164	50	Improved commutation



Schunk Competence-Center

Schunk is your design and development partner in special demands for wind power systems.

We are your one-stop source for customized solutions such as design and development, production, assembly, sales and applications engineering.

Schunk manufactures e.g.

- Carbon Brushes
- Brush Holders
- Brush Rockers
- Slip Rings
- Lightning Protection Systems
- Shaft Grounding Units
(also for Synchronous Generators)
- Flexible Current Connectors

Our subsidiaries worldwide offer you a competent and fast service of a global company.

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